

We claim:

1. A locking mechanism for a security gate operating shaft contained in a security gate operating mechanism having a housing from which extends the operating shaft, comprising:

a locking collar mounted on the operating shaft for rotary motion along with the operating shaft, and having at least one engageable member;

an operating shaft locking mechanism slide mounting assembly attachable to the housing in one of at least two positions;

a locking plate slideably mounted in the slide mounting assembly and having an opening in registration with the operating shaft and having at least one locking finger extending into the opening and adapted to engage the at least one engageable member

an electrically operated sliding unit adapted, when energized, to move the slideable plate to a first position against a return force, and when deenergized to allow the slideable plate to move under the influence of the return force to a second position; and,

wherein the mounting of the slide mounting assembly in the first position of the slide mounting assembly places the at least one locking finger in a position to engage the at least one engageable member when the electrically operated sliding unit is deenergized and the mounting of the slide mounting assembly in the second position of the slide mounting assembly places the at least one locking finger in a position to engage the at least one engageable member when the electrically operated sliding unit is energized.

2. The apparatus of claim 1 wherein the at least one locking finger comprises a first and a second locking finger, and wherein in the first mounting position of the slide mounting assembly the first locking finger is in an engaging position when the electrically operated sliding unit is deenergized and wherein in the second mounting position of the slide mounting assembly the second locking finger is in

an engaging position when the electrically operated sliding unit is energized.

3. The apparatus of claim 1 further comprising:

the locking collar includes a plurality of engageable members.

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4. The apparatus of claim 2 further comprising:

the locking collar includes a plurality of engageable members.

5. The apparatus of claim 1 further comprising:

10 the electrically operated sliding unit comprises a solenoid operated arm connected to the locking plate.

6. The apparatus of claim 2 further comprising:

15 the electrically operated sliding unit comprises a solenoid operated arm connected to the locking plate.

7. The apparatus of claim 3 further comprising:

the locking collar comprises a sprocket wheel having a plurality of radially extending sprocket teeth.

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8. The apparatus of claim 4 further comprising:

the locking collar comprises a sprocket wheel having a plurality of radially extending sprocket teeth.

25 9. The apparatus of claim 5 further comprising:

the locking collar comprises a sprocket wheel having a plurality of radially extending sprocket teeth.

10. The apparatus of claim 6 further comprising:

30 the locking collar comprises a sprocket wheel having a plurality of radially

extending sprocket teeth.

11. The apparatus of claim 1 further comprising:

5       the electrically operated sliding unit is electrically connected to a power source that is also electrically connected to the source of electrical power for operating the operating shaft and the first mounting position of the slide mounting assembly is a fail-locked position.

12. The apparatus of claim 2 further comprising:

10       the electrically operated sliding unit is electrically connected to a power source that is also electrically connected to the source of electrical power for operating the operating shaft and the first mounting position of the slide mounting assembly is a fail-locked position.

15       13. The apparatus of claim 1 further comprising:

      the electrically operated sliding unit is electrically connected to a power source other than that which is electrically connected to the source of electrical power for operating the operating shaft and the second mounting position of the slide mounting assembly is a fail-unlocked position.

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14. The apparatus of claim 2 further comprising:

      the electrically operated sliding unit is electrically connected to a power source that is also electrically connected to the source of electrical power for operating the operating shaft and the second mounting position of the slide mounting assembly is a fail-unlocked position.

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15. A locking mechanism for a security gate operating shaft contained in a security gate operating mechanism having a housing from which extends the operating shaft, comprising:

30       a locking collar mounted on the operating shaft for rotary motion along

with the operating shaft, and having at least one engageable protrusion extending radially from the locking collar;

an operating shaft locking mechanism slide mounting assembly attachable to the housing in one of at least two positions;

- 5           a locking plate slideably mounted in the slide mounting and having an opening in registration with the operating shaft and having at least one locking finger extending into the opening and adapted to engage the at least one engageable protrusion;

          sliding means for moving the slideable plate to a first position against a return force when energized, and when deenergized for allowing the slideable plate to move in response to the return force to a second position; and,

          wherein the mounting of the slide mounting assembly in the first position of the slide mounting assembly places the at least one locking finger in a position to engage the at least one engageable protrusion when the electrically operated  
15       sliding unit is deenergized and the mounting of the slide mounting assembly in the second position of the slide mounting assembly places the at least one locking finger in a position to engage the at least one engageable protrusion when the electrically operated sliding unit is energized.

- 20       16. The apparatus of claim 15 wherein the at lease one locking finger comprises a first and a second locking finger, and wherein in the first mounting position of the slide mounting assembly the first locking finger is in the engaging position when the sliding means is deenergized and wherein in the second mounting of the slide mounting assembly the second locking finger is in the engaging position when the  
25       sliding means is energized.

17. The apparatus of claim 15 further comprising:

          the locking collar includes a plurality of engageable protrusions.

- 30       18. The apparatus of claim 16 further comprising:

the locking collar includes a plurality of engageable protrusions.

19. The apparatus of claim 15 further comprising:

the sliding means comprises a solenoid operated arm connected to the  
5 locking plate.

20. The apparatus of claim 16 further comprising:

the sliding means comprises a solenoid operated arm connected to the  
locking plate.

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21. The apparatus of claim 17 further comprising:

the locking collar comprises a sprocket wheel having a plurality of radially  
extending sprocket teeth.

15 22. The apparatus of claim 18 further comprising:

the locking collar comprises a sprocket wheel having a plurality of radially  
extending sprocket teeth.

23. The apparatus of claim 19 further comprising:

20 the locking collar comprises a sprocket wheel having a plurality of radially  
extending sprocket teeth.

24. The apparatus of claim 20 further comprising:

the locking collar comprises a sprocket wheel having a plurality of radially  
25 extending sprocket teeth.

25. The apparatus of claim 15 further comprising:

the sliding means in the first mounting position of the slide mounting  
assembly comprises a means for failing-locked.

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26. The apparatus of claim 16 further comprising:

the sliding means in the first mounting position of the slide mounting assembly comprises a means for failing-locked.

5 27. The apparatus of claim 15 further comprising:

the sliding means in the second mounting position of the slide mounting assembly comprises a means for failing-unlocked.

28. The apparatus of claim 16 further comprising:

10 the sliding means in the second mounting position of the slide mounting assembly comprises a means for failing-unlocked.

29. A method for locking a security gate operating shaft contained in a security gate operating mechanism having a housing from which extends the operating shaft, comprising:

15 including a locking collar on the operating shaft for rotary motion along with the operating shaft, the locking collar having at least one engageable protrusion extending radially from the locking collar;

providing an operating shaft locking mechanism slide mounting assembly  
20 attachable to the housing in one of at least two positions;

slideably mounting a slidable locking plate in the slide mounting assembly, the locking plate having an opening in registration with the operating shaft and having at least one locking finger extending into the opening and adapted to engage the at least one engageable protrusion;

25 moving the slideable locking plate to a first selectable position against a return force or allowing the slideable locking plate to move in response to the return force to a second selectable position; and,

wherein the mounting of the slide mounting assembly in the first position of the slide mounting assembly places the at least one locking finger in a position  
30 to engage the at least one engageable protrusion when in the first selectable

position and the mounting of the slide mounting assembly in the second position of the slide mounting assembly places the at least one locking finger in a position to engage the at least one engageable protrusion when in the second selectable position.

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30. The method of claim 29 wherein the at least one locking finger comprises a first and a second locking finger, and wherein in the first mounting position of the slide mounting assembly the first locking finger is in the engaging position in the first selectable position and wherein in the second mounting of the slide mounting assembly the second locking finger is in the engaging position in the second selectable position.

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31. The method of claim 29 further comprising:

the locking collar includes a plurality of engageable protrusions.

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32. The method of claim 30 further comprising:

the locking collar includes a plurality of engageable protrusions.

33. The method of claim 29 further comprising:

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utilizing a solenoid operated mechanism to select between the first and second selectable positions.

34. The method of claim 30 further comprising:

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utilizing a solenoid operated mechanism to select between the first and second selectable positions.

35. The method of claim 31 further comprising:

the locking collar comprises a sprocket wheel having a plurality of radially extending sprocket teeth.

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36. The method of claim 32 further comprising:

the locking collar comprises a sprocket wheel having a plurality of radially extending sprocket teeth.

5 37. The method of claim 33 further comprising:

the locking collar comprises a sprocket wheel having a plurality of radially extending sprocket teeth.

38. The method of claim 34 further comprising:

10 the locking collar comprises a sprocket wheel having a plurality of radially extending sprocket teeth.

39. The method of claim 29 further comprising:

15 in the first mounting position of the slide mounting assembly the first selectable position comprises a fail-locked position.

40. The method of claim 30 further comprising:

20 in the first mounting position of the slide mounting assembly the first selectable position comprises a fail-locked position.

41. The method of claim 29 further comprising:

in the second mounting position of the slide mounting assembly the first selectable position comprises a fail-unlocked position.

25 42. The method of claim 30 further comprising:

in the second mounting position of the slide mounting assembly the first selectable position comprises a fail-unlocked position.

30 43. A locking mechanism for a security gate operating shaft contained in a security gate operating mechanism having a housing from which extends the operating



shaft, comprising:

a locking collar mounted on the operating shaft for rotary motion along with the operating shaft, and having at least one engageable protrusion extending radially from the locking collar;

5 an operating shaft locking mechanism slide mounting assembly attachable to the housing in one of at least two positions;

a locking plate slideably mounted in the slide mounting and having an opening in registration with the operating shaft and having at least one locking finger extending into the opening and adapted to engage the at least one  
10 engageable protrusion;

an electrically operated sliding unit adapted, when energized, to move the slideable plate to a first position against a return force, and when deenergized to allow the slideable plate to move in response to the return force to a second position;

15 wherein the mounting of the slide mounting assembly in the first position of the slide mounting assembly places the at least one locking finger in a position to engage the at least one engageable protrusion when the electrically operated sliding unit is deenergized and the mounting of the slide mounting assembly in the second position of the slide mounting assembly places the at least one locking  
20 finger in a position to engage the at least one engageable protrusion when the electrically operated sliding unit is energized; and,

wherein the at least one locking finger comprises a first and a second locking finger, and wherein in the first mounting position of the slide mounting assembly the first locking finger is in the engaging position when the electrically  
25 operated sliding unit is deenergized and wherein in the second mounting of the slide mounting assembly the second locking finger is in the engaging position when the electrically operated sliding unit is energized.

44. A locking mechanism for a security gate operating shaft contained in a security  
30 gate operating mechanism having a housing from which extends the operating

shaft, comprising:

a locking collar mounted on the operating shaft for rotary motion along with the operating shaft, and having at least one engageable protrusion extending radially from the locking collar;

5 an operating shaft locking mechanism slide mounting assembly attachable to the housing in one of at least two positions;

a locking plate slideably mounted in the slide mounting and having an opening in registration with the operating shaft and having at least one locking finger extending into the opening and adapted to engage the at least one  
10 engageable protrusion;

an electrically operated sliding unit adapted, when energized, to move the slideable plate to a first position against a return force, and when deenergized to allow the slideable plate to move in response to the return force to a second position;

15 wherein the mounting of the slide mounting assembly in the first position of the slide mounting assembly places the at least one locking finger in a position to engage the at least one engageable protrusion when the electrically operated sliding unit is deenergized and the mounting of the slide mounting assembly in the second position of the slide mounting assembly places the at least one locking  
20 finger in a position to engage the at least one engageable protrusion when the electrically operated sliding unit is energized;

wherein the at least one locking finger comprises a first and a second locking finger, and wherein in the first mounting position of the slide mounting assembly the first locking finger is in the engaging position when the electrically  
25 operated sliding unit is deenergized and wherein in the second mounting of the slide mounting assembly the second locking finger is in the engaging position when the electrically operated sliding unit is energized; and,

the locking collar includes a plurality of engageable protrusions.

30 45. A locking mechanism for a security gate operating shaft contained in a security

gate operating mechanism having a housing from which extends the operating shaft, comprising:

a locking collar mounted on the operating shaft for rotary motion along with the operating shaft, and having at least one engageable protrusion extending radially from the locking collar;

an operating shaft locking mechanism slide mounting assembly attachable to the housing in one of at least two positions;

a locking plate slideably mounted in the slide mounting and having an opening in registration with the operating shaft and having at least one locking finger extending into the opening and adapted to engage the at least one engageable protrusion;

an electrically operated sliding unit adapted, when energized, to move the slideable plate to a first position against a return force, and when deenergized to allow the slideable plate to move in response to the return force to a second position;

wherein the mounting of the slide mounting assembly in the first position of the slide mounting assembly places the at least one locking finger in a position to engage the at least one engageable protrusion when the electrically operated sliding unit is deenergized and the mounting of the slide mounting assembly in the second position of the slide mounting assembly places the at least one locking finger in a position to engage the at least one engageable protrusion when the electrically operated sliding unit is energized;

wherein the at lease one locking finger comprises a first and a second locking finger, and wherein in the first mounting position of the slide mounting assembly the first locking finger is in the engaging position when the electrically operated sliding unit is deenergized and wherein in the second mounting of the slide mounting assembly the second locking finger is in the engaging position when the electrically operated sliding unit is energized;

the locking collar includes a plurality of engageable protrusions; and,

the electrically operated sliding unit comprises a solenoid operated arm

connected to the locking plate.

46. A locking mechanism for a security gate operating shaft contained in a security gate operating mechanism having a housing from which extends the operating shaft, comprising:

a locking collar mounted on the operating shaft for rotary motion along with the operating shaft, and having at least one engageable protrusion extending radially from the locking collar;

an operating shaft locking mechanism slide mounting assembly attachable to the housing in one of at least two positions;

a locking plate slideably mounted in the slide mounting and having an opening in registration with the operating shaft and having at least one locking finger extending into the opening and adapted to engage the at least one engageable protrusion;

an electrically operated sliding unit adapted, when energized, to move the slideable plate to a first position against a return force, and when deenergized to allow the slideable plate to move in response to the return force to a second position;

wherein the mounting of the slide mounting assembly in the first position of the slide mounting assembly places the at least one locking finger in a position to engage the at least one engageable protrusion when the electrically operated sliding unit is deenergized and the mounting of the slide mounting assembly in the second position of the slide mounting assembly places the at least one locking finger in a position to engage the at least one engageable protrusion when the electrically operated sliding unit is energized;

wherein the at least one locking finger comprises a first and a second locking finger, and wherein in the first mounting position of the slide mounting assembly the first locking finger is in the engaging position when the electrically operated sliding unit is deenergized and wherein in the second mounting of the slide mounting assembly the second locking finger is in the engaging position

when the electrically operated sliding unit is energized;

the locking collar comprises a sprocket wheel having a plurality of radially extending sprocket teeth; and,

the electrically operated sliding unit comprises a solenoid operated arm  
5 connected to the locking plate.

47. A locking mechanism for a security gate operating shaft contained in a security gate operating mechanism having a housing from which extends the operating shaft, comprising:

10 a locking collar mounted on the operating shaft for rotary motion along with the operating shaft, and having at least one engageable protrusion extending radially from the locking collar;

an operating shaft locking mechanism slide mounting assembly attachable to the housing in one of at least two positions;

15 a locking plate slideably mounted in the slide mounting and having an opening in registration with the operating shaft and having at least one locking finger extending into the opening and adapted to engage the at least one engageable protrusion;

an electrically operated sliding unit adapted, when energized, to move the  
20 slideable plate to a first position against a return force, and when deenergized to allow the slideable plate to move against the return force to a second position;

wherein the mounting of the slide mounting assembly in the first position of the slide mounting assembly places the at least one locking finger in a position to engage the at least one engageable protrusion when the electrically operated  
25 sliding unit is deenergized and the mounting of the slide mounting assembly in the second position of the slide mounting assembly places the at least one locking finger in a position to engage the at least one engageable protrusion when the electrically operated sliding unit is energized; and,

the electrically operated sliding unit is electrically connected to a power  
30 source that is also electrically connected to the source of electrical power for

operating the operating shaft and the first mounting position of the slide mounting assembly is a fail-locked position.

48. A locking mechanism for a security gate operating shaft contained in a security gate operating mechanism having a housing from which extends the operating shaft, comprising:

a locking collar mounted on the operating shaft for rotary motion along with the operating shaft, and having at least one engageable protrusion extending radially from the locking collar;

an operating shaft locking mechanism slide mounting assembly attachable to the housing in one of at least two positions;

a locking plate slideably mounted in the slide mounting and having an opening in registration with the operating shaft and having at least one locking finger extending into the opening and adapted to engage the at least one engageable protrusion;

an electrically operated sliding unit adapted, when energized, to move the slideable plate to a first position against a return force, and when deenergized to allow the slideable plate to move in response to the return force to a second position;

wherein the mounting of the slide mounting assembly in the first position of the slide mounting assembly places the at least one locking finger in a position to engage the at least one engageable protrusion when the electrically operated sliding unit is deenergized and the mounting of the slide mounting assembly in the second position of the slide mounting assembly places the at least one locking finger in a position to engage the at least one engageable protrusion when the electrically operated sliding unit is energized; and

the electrically operated sliding unit is electrically connected to a power source that is also electrically connected to the source of electrical power for operating the operating shaft and the second mounting position of the slide mounting assembly is a fail-unlocked position.

